Amendments to the Claims

Please amend Claims 1, 8, 10, 15 and 16. Please add new Claims 23-34. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1.   (Currently Amended) A method for use in encoding and decoding ~~a data set~~ blocks of data representing an image, each block comprising a data set, the method comprising for each block:

a first subroutine for partitioning the data set into first and second sets, for adding the first set into a list of insignificant sets (LIS), and for initializing a list of significant pixels (LSP);

a second subroutine for testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP;

a third subroutine for refining the quantization of the pixels in the LSP; and

a fourth subroutine for decrementing the threshold value,

wherein the second, third and fourth subroutines are repeated until encoding/decoding of the data set has been completed.

2.   (Original) The method as recited in claim 1, wherein the fourth subroutine further comprises a routine for entropy coding a significance map generated in accordance with the second and third subroutines.

3.   (Original) The method as recited in claim 1, wherein members of the first set demonstrating significance with respect to the threshold value are partitioned employing a quadtree partitioning scheme.

4.   (Original) The method as recited in claim 3, wherein members of the first set demonstrating significance with respect to the threshold value are recursively partitioned employing a quadtree partitioning scheme.

5.   (Original) The method as recited in claim 1, wherein members of the second set demonstrating significance are with respect to the threshold value partitioned employing octave band partitioning.

6.   (Original) The method as recited in claim 5, wherein members of the second set demonstrating significance are with respect to the threshold value recursively partitioned employing octave band partitioning.

7.   (Original) The method as recited in claim 2, wherein the subroutine for entropy coding is performed using arithmetic coding.

8.   (Currently Amended) The method as recited in claim 1, wherein the image comprises a sequence of images ~~which vary over time~~.

9.   (Original) The method as recited in claim 1, wherein the second, third and fourth subroutines are repeated until one of the encoding/decoding of the data indicative of the lowest bit plane has been completed and the bit budget has been spent.

10.   (Currently Amended) A coder for use in encoding and decoding ~~a data set~~ blocks of data corresponding to an image, each block comprising a data set, comprising:

        first means for partitioning the subband transformation for each block into first and second sets, for adding the first set into a list of insignificant sets (LIS), and for initializing a list of significant pixels (LSP);

        second means for testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in

accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP; and

third means for refining the quantization of the pixels in the LSP;

wherein said second and third means are employed seriatim as the threshold value is decremented until encoding/decoding of the data set has been completed.

11. (Original) The coder as recited in claim 10, further comprising:

fourth means for entropy coding a significance map cooperatively generated by the second and third means.

12. (Original) The coder as recited in claim 10, wherein members of the first set demonstrating significance with respect to the threshold value are partitioned employing a quadtree partitioning scheme.

13. (Original) The coder as recited in claim 10, wherein members of the second set demonstrating significance are partitioned employing octave band partitioning.

14. (Original) The coder as recited in claim 11, wherein the fourth means performs entropy coding using arithmetic coding.

15. (Currently Amended) A recording medium storing computer readable instructions for converting a general purpose computer into a hierarchical image coder, wherein the image coder is a low-complexity image coder which generates ~~a selectively~~ an embedded bit stream suitable for progressive transmission wherein the embedded bit stream can be used to decode the image at any rate less than or equal to the coded rate to provide the best image reconstruction possible with the particular coding scheme.

16. (Currently Amended) The recording medium as recited in claim 15, wherein the computer readable instructions permit the general purpose computer to repeatedly store and release data representing blocks of [[a]] an image being ~~encode~~ encoded to thereby

permit the hierarchical image coder to process an image larger in size than available coder computer memory.

17.　(Original) The recording medium as recited in claim 15, wherein the computer readable instructions permit the hierarchical image coder to perform both lossy and lossless compression.

18.　(Original) The recording medium as recited in claim 15, wherein the computer readable instructions permit the hierarchical image coder to perform both lossy and lossless compression without sorting.

19.　(Original) A recording medium storing computer readable instructions for converting a general purpose computer into a hierarchical image decoder, wherein the image decoder is a low-complexity image decoder which reconstructs an image from a selectively embedded bit stream transmitted by progressive transmission.

20.　(Original) The recording medium as recited in claim 19, wherein the computer readable instructions permit the general purpose computer to repeatedly store and release data representing blocks of a image being decode to thereby permit the hierarchical image coder to reconstruct an image larger in size than available decoder computer memory.

21.　(Original) The recording medium as recited in claim 19, wherein the computer readable instructions permit the hierarchical image decoder to reconstruct images from the selectively embedded bit stream irrespective or whether the selectively embedded bit stream represents either lossy or lossless compression.

22.　(Original) The recording medium as recited in claim 21, wherein the computer readable instructions permit the hierarchical image decoder to perform both lossy and lossless compression without sorting.

23.   (New) A computer readable medium having computer readable program codes embodied therein for encoding and decoding a data set representing an image, the computer readable medium program codes performing functions comprising:

(a) partitioning the data set into first and second sets, adding the first set into a list of insignificant sets (LIS), and initializing a list of significant pixels (LSP);

(b) testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP;

©) refining the quantization of the pixels in the LSP; and

(d) decrementing the threshold value,

wherein (b), (c) and (d) are repeated until encoding/decoding of the data set has been completed.

24.   (New) The computer readable medium as recited in claim 23, further comprising entropy coding a significance map generated in accordance with (b) and (c).

25.   (New) The computer readable medium as recited in claim 23, wherein members of the first set demonstrating significance with respect to the threshold value are partitioned employing a quadtree partitioning scheme.

26.   (New) The computer readable medium as recited in claim 25, wherein members of the first set demonstrating significance with respect to the threshold value are recursively partitioned employing a quadtree partitioning scheme.

27.   (New) The computer readable medium as recited in claim 23, wherein members of the second set demonstrating significance are with respect to the threshold value partitioned employing octave band partitioning.

28. (New) The computer readable medium as recited in claim 27, wherein members of the second set demonstrating significance are with respect to the threshold value recursively partitioned employing octave band partitioning.

29. (New) The computer readable medium as recited in claim 24, wherein entropy coding is performed using arithmetic coding.

30. (New) The computer readable medium as recited in claim 23, wherein the image comprises a sequence of images which vary over time.

31. (New) The computer readable medium as recited in claim 23, wherein (b), (c) and (d) are repeated until one of the encoding/decoding of the data indicative of the lowest bit plane has been completed and the bit budget has been spent.

32. (New) A method for use in encoding and decoding a data set representing an image having at least two dimensions, the method comprising:

a first subroutine for partitioning the data set into first and second sets, for adding the first set into a list of insignificant sets (LIS), and for initializing a list of significant pixels (LSP);

a second subroutine for testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP;

a third subroutine for refining the quantization of the pixels in the LSP; and

a fourth subroutine for decrementing the threshold value,

wherein the second, third and fourth subroutines are repeated until encoding/decoding of the data set has been completed.

33.   (New) The method as recited in claim 32, wherein the image comprises a sequence of images.

34.   (New) The method as recited in claim 32, wherein the image comprises a fixed three-dimensional image.